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EXAMINER
HON, SOW FUN

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/535,099	MATSUNAGA, NAOHIRO	
	Examiner	Art Unit	
	SOPHIE HON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-24_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-24_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _10/11/07,5/16/05_.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-10, 21-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claim 1 recites "coarse" particles. It is unclear what the term means. It is unclear if the particle has a coarse textured surface, or if it is agglomerated to form irregular secondary particles. For the purposes of examination, the coarse particles are treated as those agglomerated to form irregular secondary particles.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6-8, 10-14, 16-18, 20-24 are rejected under 35 U.S.C. 102(a) as being anticipated by Ito (WO 03/034104).

Regarding claim 1, Ito teaches an anti-reflection film comprising a transparent support (substrate, page 1, lines 11-15, (20), page 9, lines 10-16, Fig. 1) at least one hard coat layer (diffusion layer (30), page 9, lines 10-16, Fig. 1, hard coat, diffusion

layer, Example 5, page 54, lines 5, 27-28) and an outermost low refractive index layer ((50), page 9, lines 10-16, Fig. 1). Ito teaches (a) that the surface of the anti-reflection film has a surface roughness of 0.05 μm (page 9, lines 1-2), which means that the central line average roughness Ra is within the claimed range of not greater than 0.15 μm, (b) the hard coat layer comprises at least one kind of particle (Example 5, lines 1-20) and (c) the at least one kind of particle includes a particle having an average particle diameter of 3.0 μm (page 56, lines 17-20) which is not smaller than 90% of the thickness of the hard coat layer (3.0 μm, page 56, line 29). Ito teaches that while both the average particle diameter of the largest particle (3.0 μm, page 56, lines 17-20) and the thickness of the hard coat layer are 3.0 μm (page 56, line 29), the surface roughness of the anti-reflection film is only 0.05 μm (page 9, lines 1-2), which means that the cut point value (CP value) of the coarse particles which are treated as being secondary particles formed by agglomeration of the primary particles, is less than 4 times the thickness of the hard coat layer.

Regarding claim 2, Ito teaches that the hard coat layer further comprises at least one particle providing an internal scattering property that has an average particle diameter of 1.5 μm (page 56, lines 13-15) which is within the range of less than 90% of the thickness of the hard coat layer (3.0 μm, page 56, line 29). Ito teaches that the surface roughness of the anti-reflection film is only 0.05 μm (page 9, lines 1-2), which means that the cut point value (CP value) of the coarse particles which are treated as being secondary particles formed by agglomeration of the primary particles, is less than 4 times the thickness of the hard coat layer.

Regarding claim 3, Ito teaches that the hard coat layer includes a light-diffusing layer (hard coat, page 56, line 5, diffusion film, page 56, line 28), and the light-diffusing layer has a scattered light intensity at 30º of 0.1 to 0.2% based on the light intensity at an exit angle of 0º in a scattered light profile measured by a goniophotometer (ratio of an intensity of scattered light at an angle of 30º to an intensity of transmitted light an angle of 0º, page 94, lines 4-10).

Regarding claim 4, Ito teaches that the surface of the anti-reflection film has a surface roughness of 0.05 μm (page 9, lines 1-2), which means that the central line average roughness Ra is within the claimed range of not greater than 0.10 μm.

Regarding claim 6, Ito teaches a polarizing plate comprising a polarizer and two protective films of the polarizer (polarizing membrane, page 50, lines 10-12), wherein one of the two protective films of the polarizer is the anti-reflection film (page 50, lines 10-15).

Regarding claim 7, Ito teaches that the protective film other than the anti-reflection film of the two protective films of a polarizer is an optically anisotropic layer (polarizing plate comprises the anti-reflection film, a polarizer, and an optically anisotropic layer, piled up in order, page 51, lines 32-35) which is part of an optical compensation layer (page 59, lines 19-20), and the optically anisotropic layer comprises a compound having a discotic structure (page 42, lines 18-23), the disc plane of the discotic structure unit is inclined with respect to the surface protective film plane (transparent support, page 42, lines 18-23) and the angle between the disc plane of the discotic structure unit and the surface protective film plane is changed in the direction of

depth of the optically anisotropic layer (inclined angle increases or decreases with increase in distance in the direction of depth from the bottom of the optically anisotropic layer, page 42, lines 24-27). The birefringence of such an optically anisotropic layer is expected to be negative in the absence of a showing otherwise.

Regarding claim 8, Ito teaches a liquid crystal display (page 2, lines 21-24) comprising the anti-reflection film as an outermost layer of the display device (top surface of the display, page 2, lines 25-30).

Regarding claim 10, Ito teaches a liquid crystal display device of a TN-, VA-, IPS- or OCB-mode transmission type (page 52, lines 28-30), comprising the anti-reflection film (page 52, lines 20-25).

Regarding claim 11, Ito teaches an anti-reflection film comprising a transparent support (substrate, page 1, lines 11-15, (20), page 9, lines 10-16, Fig. 1) at least one hard coat layer (diffusion layer (30), page 9, lines 10-16, Fig. 1, hard coat, diffusion layer, Example 5, page 54, lines 5, 27-28) and an outermost low refractive index layer ((50), page 9, lines 10-16, Fig. 1). Ito teaches (a) that the surface of the anti-reflection film has a surface roughness of 0.05 μm (page 9, lines 1-2), which means that the central line average roughness Ra is within the claimed range of not greater than 0.15 μm, (b) the hard coat layer comprises at least one kind of particle (Example 5, lines 1-20) and (c) the at least one kind of particle includes a particle having an average particle diameter of 3.0 μm (page 56, lines 17-20) which is not smaller than 90% of the thickness of the hard coat layer (3.0 μm, page 56, line 29). Ito teaches that the one kind of particle is mono-dispersed (page 13, lines 4-9), which means that the variance in the

particle diameter is close to 0, and satisfies the relationship represented by formula (1) of Applicant.

Regarding claim 12, Ito teaches that the hard coat layer further comprises at least one particle providing an internal scattering property that has an average particle diameter of 1.5 μm (page 56, lines 13-15) which is within the range of less than 90% of the thickness of the hard coat layer (3.0 μm, page 56, line 29). Ito teaches that the particles are mono-dispersed (page 13, lines 4-9), which means that the variance in the particle diameter is close to 0, and satisfies the relationship represented by formula (1) of Applicant.

Regarding claim 13, Ito teaches that the hard coat layer includes a light-diffusing layer (hard coat, page 56, line 5, diffusion film, page 56, line 28), and the light-diffusing layer has a scattered light intensity at 30º of 0.1 to 0.2% based on the light intensity at an exit angle of 0º in a scattered light profile measured by a goniophotometer (ratio of an intensity of scattered light at an angle of 30º to an intensity of transmitted light an angle of 0º, page 94, lines 4-10).

Regarding claim 14, Ito teaches that the surface of the anti-reflection film has a surface roughness of 0.05 μm (page 9, lines 1-2), which means that the central line average roughness Ra is within the claimed range of not greater than 0.10 μm.

Regarding claim 16, Ito teaches a polarizing plate comprising a polarizer and two protective films of the polarizer (polarizing membrane, page 50, lines 10-12), wherein one of the two protective films of the polarizer is the anti-reflection film (page 50, lines 10-15).

Regarding claim 17, Ito teaches that the protective film other than the anti-reflection film of the two protective films of a polarizer is an optically anisotropic layer (polarizing plate comprises the anti-reflection film, a polarizer, and an optically anisotropic layer, piled up in order, page 51, lines 32-35) which is part of an optical compensation layer (page 59, lines 19-20), and the optically anisotropic layer comprises a compound having a discotic structure (page 42, lines 18-23), the disc plane of the discotic structure unit is inclined with respect to the surface protective film plane (transparent support, page 42, lines 18-23) and the angle between the disc plane of the discotic structure unit and the surface protective film plane is changed in the direction of depth of the optically anisotropic layer (inclined angle increases or decreases with increase in distance in the direction of depth from the bottom of the optically anisotropic layer, page 42, lines 24-27). The birefringence of such an optically anisotropic layer is expected to be negative in the absence of a showing otherwise.

Regarding claim 18, Ito teaches a liquid crystal display (page 2, lines 21-24) comprising the anti-reflection film as an outermost layer of the display device (top surface of the display, page 2, lines 25-30).

Regarding claim 20, Ito teaches a liquid crystal display device of a TN-, VA-, IPS- or OCB-mode transmission (page 52, lines 28-30), comprising the anti-reflection film (page 52, lines 20-25).

Regarding claim 21, Ito teaches a liquid crystal display comprising the polarizing plate as the outermost layer of the display device (page 52, lines 20-25).

Regarding claim 22, Ito teaches a liquid crystal display device of a TN-, VA-, IPS- or OCB-mode transmission (page 52, lines 28-30), comprising the polarizing plate (page 52, lines 20-25).

Regarding claim 23, Ito teaches a liquid crystal display comprising the polarizing plate as the outermost layer of the display device (page 52, lines 20-25).

Regarding claim 24, Ito teaches a liquid crystal display device of a TN-, VA-, IPS- or OCB-mode transmission (page 52, lines 28-30), comprising the polarizing plate (page 52, lines 20-25).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 5, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito as applied to claims 1-4, 6-8, 10-14, 16-18, 20-24 above, and further in view of Tanaka (JPO Website Machine English Translation of JP 10-268111).

Ito teaches the anti-reflection film described above. Ito teaches that the anti-reflection film is used in an image display (page 2, lines 21-24). Ito is silent regarding the value of transmitted image sharpness.

However, one of ordinary skill in the art would readily know and understand that the ideal value of transmitted image sharpness is 100% regardless of the optical comb width of the measuring instrumentation used. Tanaka teaches that an anti-reflection film provides a value of transmitted image sharpness that is within the range of 10 to 70% as measured at a comb width of 0.05 mm, and is within the range of 15 to 80% as measured at a wider comb width of 0.125 mm (transmission image color definition in an image clarity measuring instrument, Detailed Description, [0004]), which means that the range is even higher as measured at Applicant's even wider comb width of 0.5 mm, and overlaps the claimed range of 40% to less than 97%. Thus Tanaka establishes the value of transmitted image sharpness as a result-effective variable for the purpose of providing the desired image clarity.

Therefore, it would have been obvious to one of ordinary skill in the at the time the invention was made, to have provided the anti-reflection film of Ito with a value of transmitted image sharpness that is within the range of not smaller than 40% to less than 97% as measured at a comb width of 0.5 mm, in order to provide the desired image clarity, as taught by Tanaka.

4. Claims 9, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito as applied to claims 1-4, 6-8, 10-14, 16-18, 20-24 above, and further in view of Nelson (US 6,535,195).

Ito teaches a liquid crystal display device comprising the anti-reflection film as an outermost layer of the display device, as described above. Ito is silent regarding the type of liquid crystal display device and so fails to teach that the device is a liquid crystal

large-sized television having a size not smaller than 21 inch or a liquid crystal wide television having an aspect ratio of 9:16 or greater.

However, Nelson teaches that a liquid crystal large-sized and hence wide television having a size of at least 42 inch (column 1, lines 33-43), which is within the claimed range of not smaller than 21 inch, and an aspect ratio of 16:9 (column 1, lines 39-40), which is within the claimed range of 9:16 or greater, is highly desirable to the consumer in the present marketplace.

Therefore, since Ito fails to teach the type of liquid crystal display device, it would have been necessary and hence obvious to have looked to the prior art for suitable types. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the liquid crystal display device of Ito, as a liquid crystal large-sized wide television having a size within the range of not smaller than 21 inch and an aspect ratio within the range of 9:16 or greater, in order to meet the present market demand, as taught by Nelson.

Claims 1-2, 4-8, 10-12, 14-18, 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsu49 (US 2002/0060849) in view of Matsu33 (US 2002/0142133).

Regarding claim 1, Matsu49 teaches an anti-reflection film comprising a transparent support 2, a hard coat layer 3 and an outermost low refractive index layer 4 ([0044], Fig. 1), wherein (b) the hard coat layer 3 comprises at least one kind of particle

([0044], Fig. 1) and (c) the at least one kind of particle includes a particle 5 having an average particle diameter of not smaller than 90% of the thickness of the hard coat layer ([0044], Fig. 1) and the cut point value (CP) of the coarse particles which are treated as being secondary particles formed by agglomeration of the primary particles 5, is less than 4 times the thickness of the hard coat layer (Fig. 1). Matsu49 teaches that the anti-reflection film also has antiglare properties ([0002]). Matsu49 fails to teach that (a) the surface of the anti-reflection film has a central line average roughness: Ra of not greater than 0.15 μm.

However, Matsu33 teaches that the central line average roughness: Ra is within the range of 0.1 to 0.17 μm (average of center line roughness (Ra), [0011]), which overlaps the claimed range of not greater than 0.15 μm, for the purpose of providing the desired antiglare properties (glare is suppressed, [0010]) to an anti-reflection (antireflection function, [0031]) film (optical, [0066]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the anti-reflection film of Matsu49 with a central line average roughness: Ra of not greater than 0.15 μm, in order to obtain the desired antiglare properties, as taught by Matsu33.

Regarding claim 2, Matsu49 teaches that the hard coat layer further comprises at least one particle providing an internal scattering property by virtue of its high refractive index (oxide of zirconium, [0074]) that has an average particle diameter of 30 nm (zirconium oxide fine particles, [0113]) which is within the claimed range of less than 90% of the thickness of the hard coat layer (1.4 μm, [0113]). The cut point value (CP) of

the coarse particles which are treated as being secondary particles formed by agglomeration of these primary particles is less than 4 times the thickness of the hard coat layer as can be seen in Fig. 1, where the relative dimensions of the 30 nm particle providing an internal scattering property is so small that it is not visible relative to the large matte particles in hard coat layer 3 (Fig. 1).

Regarding claim 4, Matsu33 teaches that the central line average roughness: Ra can be 0.10 μm (average of center line roughness (Ra), [0011]), for the purpose of providing the desired antiglare properties (glare is suppressed, [0010]).

Regarding claim 5, Matsu49 teaches that the anti-reflection film has a value of transmitted image sharpness within the range of 30% or more as measured at a comb width of 0.5 mm (transmission image clarity, [0124]), which encompasses the claimed range of smaller than 40% to less than 97%, wherein it is common sense that the value of 100% is ideal.

Regarding claim 6, Matsu49 teaches a polarizing plate (polarizer, [0033]) comprising a polarizer and two protective films of the polarizer (polarizing layer, [0033]), wherein one of the two protective films of the polarizer is the anti-reflection film (antiglare film, [0033]) discussed above.

Regarding claim 7, Matsu49 teaches that the protective film other than the anti-reflection film of the two protective films of a polarizer is an optical compensation film having an optical compensation layer comprising an optically anisotropic layer (on the other side, [0105]). Matsu49 is silent regarding the type of optically anisotropic layer.

However, Matsu33 teaches that an optically anisotropic layer comprising a compound having a discotic structure unit, the disc plane of the discotic structure unit is inclined with respect to the surface protective film plane (tilted alignment layer of discotic liquid crystal polymer, [0045]) is used in an optical compensation film, for the purpose of providing a wide viewing angle ([0045]). The birefringence of such an optically anisotropic layer is expected to be negative in the absence of a showing otherwise. The angle between the disc plane of the discotic structure unit and the surface protective film ordinarily changes for a discotic liquid crystal polymer comprising the discotic structure monomer repeat unit in the direction of depth of the optically anisotropic layer.

Therefore, since Matsu49 is silent regarding the type of optically anisotropic layer, it would have been necessary and hence obvious to have looked to the prior art for suitable types. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the optically anisotropic layer of Matsu33 as the optically anisotropic layer in the optical compensation layer of Matsu49, in order to obtain the desired wide viewing angle, as taught by Matsu33.

Regarding claim 8, Matsu49 teaches a liquid crystal display device comprising the anti-reflection film (antiglare film, [0061]) as an outermost layer of the display device (outermost surface, [0061]).

Regarding claim 10, Matsu49 is silent regarding the mode of the liquid crystal display device comprising the anti-reflection film.

However, Matsu33 teaches that the anti-reflection film can be used in any mode of liquid crystal display device, including TN- and STN- mode (arbitrary type, [0066]) reflection type ([0041]) for the purpose of providing the display device with the desired anti-reflection properties.

Therefore, since Matsu49 is silent regarding the mode of the liquid crystal display device, it would have been necessary and hence obvious to have looked to the prior art for suitable types. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the anti-reflection film in a liquid crystal display of any mode, including TN- and STN-mode reflection type, in order to provide the display device with the desired anti-reflection properties, as taught by Matsu33.

Regarding claim 11, Matsu49 teaches an anti-reflection film comprising a transparent support 2, a hard coat layer 3 and an outermost low refractive index layer 4 ([0044], Fig. 1), wherein (b) the hard coat layer 3 comprises at least one kind of particle ([0044], Fig. 1) and (c) the at least one kind of particle includes a particle 5 having an average particle diameter of not smaller than 90% of the thickness of the hard coat layer ([0044], Fig. 1) and Fig. 1 of Matsu49 shows that the particle 5 in the hard coat layer 3 satisfies a relationship represented by Applicant's formula (1). Matsu49 teaches that the anti-reflection film also has antiglare properties ([0002]). Matsu49 fails to teach that (a) the surface of the anti-reflection film has a central line average roughness: Ra of not greater than 0.15 μm.

However, Matsu33 teaches that the central line average roughness: Ra is within the range of 0.1 to 0.17 µm (average of center line roughness (Ra), [0011]), which overlaps the claimed range of not greater than 0.15 µm, for the purpose of providing the desired antiglare properties (glare is suppressed, [0010]) to an anti-reflection (antireflection function, [0031]) film (optical, [0066]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the anti-reflection film of Matsu49 with a central line average roughness: Ra of not greater than 0.15 µm, in order to obtain the desired antiglare properties, as taught by Matsu33.

Regarding claim 12, Matsu49 teaches that the hard coat layer further comprises at least one particle providing an internal scattering property by virtue of its high refractive index (oxide of zirconium, [0074]) that has an average particle diameter of 30 nm (zirconium oxide fine particles, [0113]) which is within the claimed range of less than 90% of the thickness of the hard coat layer (1.4 µm, [0113]). Matsu teaches that the maximum diameter of particles is about 2 µm (spherical particles for imparting an antiglare property, [0113]), which means that the at least one particle providing an internal scattering property that has an average particle diameter of less than 90% of the thickness of the hard coat layer satisfies the relationship represented by Applicant's formula (1).

Regarding claim 14, Matsu33 teaches that the central line average roughness: Ra can be 0.10 µm (average of center line roughness (Ra), [0011]), for the purpose of providing the desired antiglare properties (glare is suppressed, [0010]).

Regarding claim 15, Matsu49 teaches that the anti-reflection film has a value of transmitted image sharpness within the range of 30% or more as measured at a comb width of 0.5 mm (transmission image clarity, [0124]), which encompasses the claimed range of smaller than 40% to less than 97%, wherein it is common sense that the value of 100% is ideal.

Regarding claim 16, Matsu49 teaches a polarizing plate (polarizer, [0033]) comprising a polarizer and two protective films of the polarizer (polarizing layer, [0033]), wherein one of the two protective films of the polarizer is the anti-reflection film (antiglare film, [0033]) discussed above.

Regarding claim 17, Matsu49 teaches that the protective film other than the anti-reflection film of the two protective films of a polarizer is an optical compensation film having an optical compensation layer comprising an optically anisotropic layer (on the other side, [0105]). Matsu49 is silent regarding the type of optically anisotropic layer.

However, Matsu33 teaches that an optically anisotropic layer comprising a compound having a discotic structure unit, the disc plane of the discotic structure unit is inclined with respect to the surface protective film plane (tilted alignment layer of discotic liquid crystal polymer, [0045]) is used in an optical compensation film, for the purpose of providing a wide viewing angle ([0045]). The birefringence of such an optically anisotropic layer is expected to be negative in the absence of a showing otherwise. The angle between the disc plane of the discotic structure unit and the surface protective film ordinarily changes for a discotic liquid crystal polymer comprising

the discotic structure monomer repeat unit in the direction of depth of the optically anisotropic layer.

Therefore, since Matsu49 is silent regarding the type of optically anisotropic layer, it would have been necessary and hence obvious to have looked to the prior art for suitable types. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the optically anisotropic layer of Matsu33 as the optically anisotropic layer in the optical compensation layer of Matsu49, in order to obtain the desired wide viewing angle, as taught by Matsu33.

Regarding claim 18, Matsu49 teaches a liquid crystal display device comprising the anti-reflection film (antiglare film, [0061]) as an outermost layer of the display device (outermost surface, [0061]).

Regarding claim 20, Matsu49 is silent regarding the mode of the liquid crystal display device comprising the anti-reflection film.

However, Matsu33 teaches that the anti-reflection film can be used in any mode of liquid crystal display device, including TN- and STN- mode (arbitrary type, [0066]) reflection type ([0041]) for the purpose of providing the display device with the desired anti-reflection properties.

Therefore, since Matsu49 is silent regarding the mode of the liquid crystal display device, it would have been necessary and hence obvious to have looked to the prior art for suitable types. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the anti-reflection film in a liquid crystal display of any mode, including TN- and STN-mode reflection type, in order to

provide the display device with the desired anti-reflection properties, as taught by Matsu33.

Regarding claims 21, 23, Matsu49 teaches a liquid crystal display device comprising the polarizing plate as an outermost layer of the display device (polarizer, claim 22, page 11).

Regarding claims 22, 24, Matsu33 teaches that the polarizing plate can be used in any mode of liquid crystal display device, including TN- and STN- mode (arbitrary type, [0066]) reflection type ([0041]) for the purpose of providing the display device with the desired anti-reflection properties.

5. Claims 3, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsu49 in view of Matsu33 as applied to claims 1-2, 4-8, 10-12, 14-18, 20-24 above, and further in view of Takahashi (US 6,945,656).

Matsu49, as modified by Masu33, teaches the anti-reflection film comprising hard coat layer as discussed above. In addition, Matsu49 teaches that the hard coat layer contains particles ([0113]), which inherently diffuse light and hence allows the hard coat layer to also function as a light diffusing layer. Masu49 fails to teach that the hard coat light diffusing layer has a scattered light intensity at 30º of 0.1 to 0.2% based on the light intensity at an exit angle of 0º in a scattered light profile measured by a goniophotometer.

However, Takahashi teaches that an anti-reflection film (preventing reflection, column 2, lines 24-30) preferably has a scattered light intensity that approaches 0%,

which includes the claimed range of from 0.1 to 0.2%, as the scattering angle approaches 30º (Fig. 3), based on light intensity at an exit angle of 0º (Fig. 1) in a scattered light profile measured by a goniophotomer (goniometer, column 15, lines 15-30), for the purpose of providing the desired uniform diffusion of incident light (isotropically, diffuses, column 14, lines 64-66) and hence anti-reflection.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the hard coat light diffusing layer of Matsu49, as modified by Masu33, with a scattered light intensity at 30º within the range of 0.1 to 0.2% based on the light intensity at an exit angle of 0º in a scattered light profile measured by a goniophotometer, in order provide the desired uniform diffusion of light and hence anti-reflection, as taught by Takahashi.

6. Claims 9, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsu49 in view of Matsu33 as applied to claims 1-2, 4-8, 10-12, 14-18, 20-24 above, and further in view of Nelson (US 6,535,195).

Matsu49, as modified by Masu33, teaches a liquid crystal display device comprising the anti-reflection film as an outermost layer of the display device, as discussed above. Matsu49 is silent regarding the type of liquid crystal display device and so fails to teach that the device is a liquid crystal large-sized television having a size not smaller than 21 inch or a liquid crystal wide television having an aspect ratio of 9:16 or greater.

However, Nelson teaches that a liquid crystal large-sized and hence wide television having a size of at least 42 inch (column 1, lines 33-43), which is within the claimed range of not smaller than 21 inch, and an aspect ratio of 16:9 (column 1, lines 39-40), which is within the claimed range of 9:16 or greater, is highly desirable to the consumer in the present marketplace.

Therefore, since Matsu49 fails to teach the type of liquid crystal display device, it would have been necessary and hence obvious to have looked to the prior art for suitable types. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the liquid crystal display device of Matsu49, as a liquid crystal large-sized wide television having a size within the range of not smaller than 21 inch and an aspect ratio within the range of 9:16 or greater, in order to meet the present market demand, as taught by Nelson.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks, can be reached on (571)272-1401. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

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/Sophie Hon/

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